ASSET MANAGEMENT PLAN

Natural Heritage

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Contents

1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

This Asset Management Plan (AM Plan) details information about Natural Heritage infrastructure assets with actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide over the 20 year planning period. The AM Plan will link to a Long-Term Financial Plan which typically considers a 10-year planning period.

1.2 Asset Description

The County of Northumberland (County) is a thriving, south-eastern Ontario community strategically positioned along Highway 401 to access both Toronto and Kingston within a 1 to 1.5 hour drive. Northumberland County offers a range of living experiences from historic towns to scenic rolling rural areas to spectacular water settings on Rice Lake, the Trent River and Lake Ontario. The County is an upper tier level of municipal government that owns and manages physical assets in numerous service areas which are used to deliver services to over 89,365 (2021 Census) residents. The County weaves together seven diverse, yet complementary municipalities that manage assets and deliver services to the community.

The seven municipalities are:

- Township of Alnwick/Haldimand
- Municipality of Brighton
- Town of Cobourg
- Township of Cramahe
- Township of Hamilton
- Municipality of Port Hope
- Municipality of Trent Hills

This plan covers the Natural Heritage infrastructure assets that provide forest recreation in Northumberland County.

The Natural Heritage network comprises:

- 217 km trails
- 2,235ha of Forest
- 6 km of Access Roads
- 5 Parking Lots
- 1145 Trail signs
- 4 Arch Ways
- 27 Benches
- 78 Boulders

- 6 Trail use counters
- 28 Gates
- 3 Garbage Receptacles
- 5 Kiosks
- 3 Picnic Tables
- 900m of Wooden Fence

The above infrastructure assets have replacement value estimated at $10,507,295.

1.3 Levels of Service

The allocation of funds within the planned budget is insufficient to continue providing existing services at current levels for the planning period.

The main service consequences resulting from the shortfall of the Planned Budget are:

- Trail closure or use restrictions implemented.
- Parking lot and trail congestion, especially motorized trails.
- Aging and deteriorating assets.
- Increased risk of invasive species.
- Ecological and forest habitats requiring restoration

1.4 Future Demand

The factors influencing future demand and the impacts they have on service delivery are created by:

- Climate Change
- Increasing population
- Increasing interest in outdoor recreation

These demands will be approached using a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand. Demand management practices may also include a combination of non-asset solutions, insuring against risks and managing failures.

The following approaches, or a combination thereof, may be used to mitigate the impact of levels of service as a result of future demands:

- Future design / rehabilitation of assets will consider increasing population and increasing number of forest users.
- On-going trail brushing
- Inspection efforts to tackle invasive species.
- Ongoing restoration needs
- Regular maintenance and inspections on aging assets to prolong lifespan.

- Development of wildfire risk reduction and control management plan to prepare for increasing risk of wildfires.

1.5 Lifecycle Management Plan

1.5.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10-year total outlays, which for the Natural Heritage is estimated as $7,215,010 or $721,501 on average per year.

1.6 Financial Summary

1.6.1 What we will do

Estimated available funding for the 10 year period is $4,187,576 or $418,758 on average per year as per the Long-Term Financial plan or Planned Budget. This is 58.04% of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long-term financial plan can be provided. The Informed decision making depends on the AM Plan emphasizing the consequences of Planned Budgets on the service levels provided and risks.

The anticipated Planned Budget for Natural Heritage leaves a shortfall of $302,743 on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

Forecast Lifecycle Costs and Planned Budgets

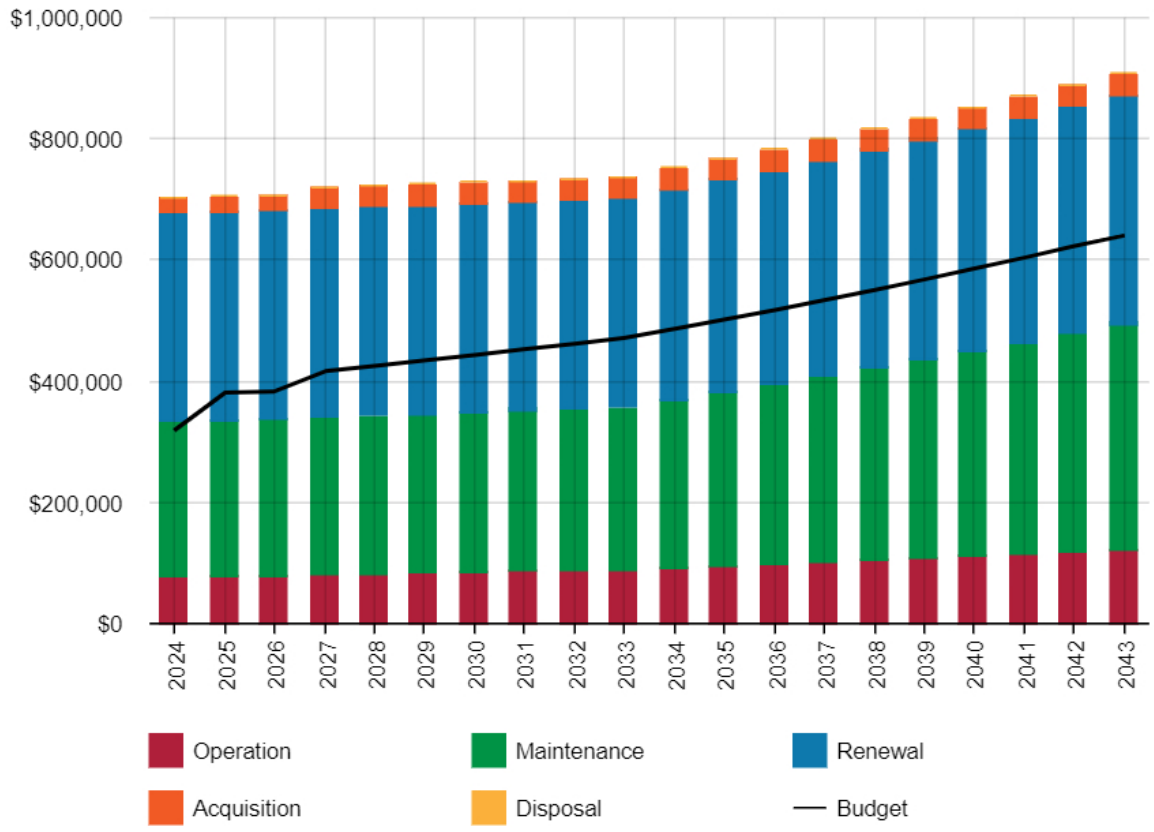


Figure Values are in 2024 dollars.

We plan to provide Natural Heritage services for the following:

- The Forest is a mix of ecological, forestry and recreation therefore, actions are prioritized with respect to these areas.
- Operation, maintenance, and renewal of Trails, Access Roads, Parking Lots and other natural and non-natural Infrastructure are prioritized to strive for service levels set by the County in annual budgets.
- Township of Alnwick/Haldimand owned road allowances and trails are present through the forest, however, a ten-year agreement for their management expires in 2024.
- Trail development will focus on improving the trail, for users experience and safety. Additional trails will be considered in the Woodland trail area.

1.6.2 What we cannot do

We currently do **not** allocate enough budget to sustain these services at the proposed standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- Complete all new construction/rehabilitation of assets to address future growth.
- Complete all ecological work necessary to keep all invasive species under control.

1.6.3 Managing the Risks

Our present budget levels are insufficient to continue to manage risks in the medium term.

The main risk consequences are:

- Overuse of trails, including increasing size and horsepower of motorized machines.
- Vegetation overgrowth
- Increased liability due to trail conditions
- Increased maintenance and repair resulting from assets not being renewed as required.
- Erosion
- Increased threat of invasive species
- Climate change

We will endeavour to manage these risks within available funding by:

- Continuing to complete trail inspections and trail maintenance.
- Prioritize maintenance activities to mitigate the risk of erosion.
- Researching cost effective strategies for tackling invasive species.
- Prioritize areas for restoration.
- Continue to move monoculture plantation to diverse natural forests.

1.7 Asset Management Planning Practices

Key assumptions made in this AM Plan are:

- Assumed age of Forest, McDonald Parking Lot and Beagle Club Parking Lot based on when Northumberland County took back management of County Forest lands from the Ministry of Natural Resources in 2000.
- Assumed the trail signs were acquired in 2019 as this appeared to be the average date.
- Assumed a 50-year lifecycle for Forest and Trails.
- Assumed a value of $8,940,000 for the Forest, which is based on $4000 per hectare for replanting.
- Assumed a value of $10,000/km for the trail network.
- Assumed function and capacity were the same as condition in the asset register.

- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles.
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations.

Assets requiring renewal are identified from either the asset register or an alternative method.

- The timing of capital renewals based on the asset register is applied by adding the useful life to the year of acquisition or year of last renewal,
- Alternatively, an estimate of renewal lifecycle costs is projected from external condition modelling systems and may be supplemented with, or based on, expert knowledge.

The Alternate method was used to forecast the renewal lifecycle costs for this AM Plan.

This AM Plan is based on a reliable level of confidence information.

1.8 Monitoring and Improvement Program

The next steps resulting from this AM Plan to improve asset management practices are:

- Further implementation and ongoing use of CityWorks for Natural Heritage data to better understand operation, maintenance and capital work and associated costs.
- Monitor asset resilience and complete a resilience assessment and plan.
- Develop a more robust risk management plan.

2.0 INTRODUCTION

2.1 Background

This AM Plan communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period.

The AM Plan is to be read in conjunction with the County planning documents. This should include the Asset Management Policy and Asset Management Strategy, where developed, along with other key planning documents:

- Northumberland County Budget and Long-Term Financial Plan
- Northumberland County Forest Management Plan 2021-2041
- Northumberland County Strategic Plan 2023-2027

Since 2009, the revised Public Sector Accounting Board (PSAB) standards have been in place. These standards required that clear definitions of capital be adopted by Municipalities and the County established the acquisition or historic value (PSAB value) for each asset grouping as well as the replacement values in current dollars. The County began developing of a long term 10-year plan as part of the 2012 budget process, which continues to be in place.

In 2014, Northumberland County Council (Council) adopted its first formal AM Plan, in accordance with Funding requirements set out in the Ministry of Infrastructure's *Building Together* standard. Federal Gas Tax funding was modified in 2016 to also include a requirement for municipalities to have a detailed asset management plan. In April 2019, as per O.Reg. 588/17 requirements, Council adopted the Northumberland County Asset Management Policy. The policy outlines the following objectives:

- Provide a consistent framework for implementing asset management throughout the organization.
- Provide transparency and accountability and to demonstrate to stakeholders the legitimacy of decision-making processes which combine strategic plans, budgets, service levels and risks.

The Asset Management Plan has been developed for Core Assets as per O.Reg. 588/17 in 2022 and is used for development of annual and long-term financial planning.

The infrastructure assets covered by this AM Plan include the Natural Heritage assets being Forest Trails, Forest Access Roads, Forest Parking Lots, and other Infrastructure such as benches, kiosks, and gates. For a detailed summary of the assets covered in this AM Plan refer to Table 5.1.1 in Section 5.

These assets are used to provide recreation activities for residents for Northumberland County such as hiking, snowshoeing, biking, skiing, horseback riding, snowmobiling, and ATVing.

The infrastructure assets included in this plan have a total replacement value of $10,507,295.

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 2.1.

Table 2.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
County Council	▪ Represent needs of community/shareholders, ▪ Allocate resources to meet planning objectives in providing services while managing risks, ▪ Ensure service sustainable.
CAO and Senior Management Team	▪ Endorse the development of asset management plans and provide the resources required to complete this task. ▪ Support an asset management driven budget and Long Term Financial Plan.
Natural Heritage and Finance	▪ Collection, consolidation, and analysis of the asset register and ensuring asset valuations are accurate based on the available data. ▪ Development of supporting policies and documentation.
External Parties	▪ Provide input through public survey on customer values, levels of service, etc.

2.2 Goals and Objectives of Asset Ownership

Our goal for managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing, and appropriately controlling risks, and
- Linking to a Long-Term Financial Plan which identifies the required, affordable forecast costs and how they will be allocated.

Key elements of the planning framework are

- Levels of service – specifies the services and levels of service to be provided,

- Risk Management – identifies critical assets, potential risk events, and provides mitigation measures to manage risk both proactively and reactively
- Future demand – how this will impact on future service delivery and how this is to be met,
- Lifecycle management – how to manage its existing and future assets to provide defined levels of service,
- Financial summary – what funds are required to provide the defined services,
- Asset management practices – how we manage provision of the services,
- Monitoring – how the plan will be monitored to ensure objectives are met,
- Asset management improvement plan – how we increase asset management maturity.

Other references to the benefits, fundamentals principles and objectives of asset management are:

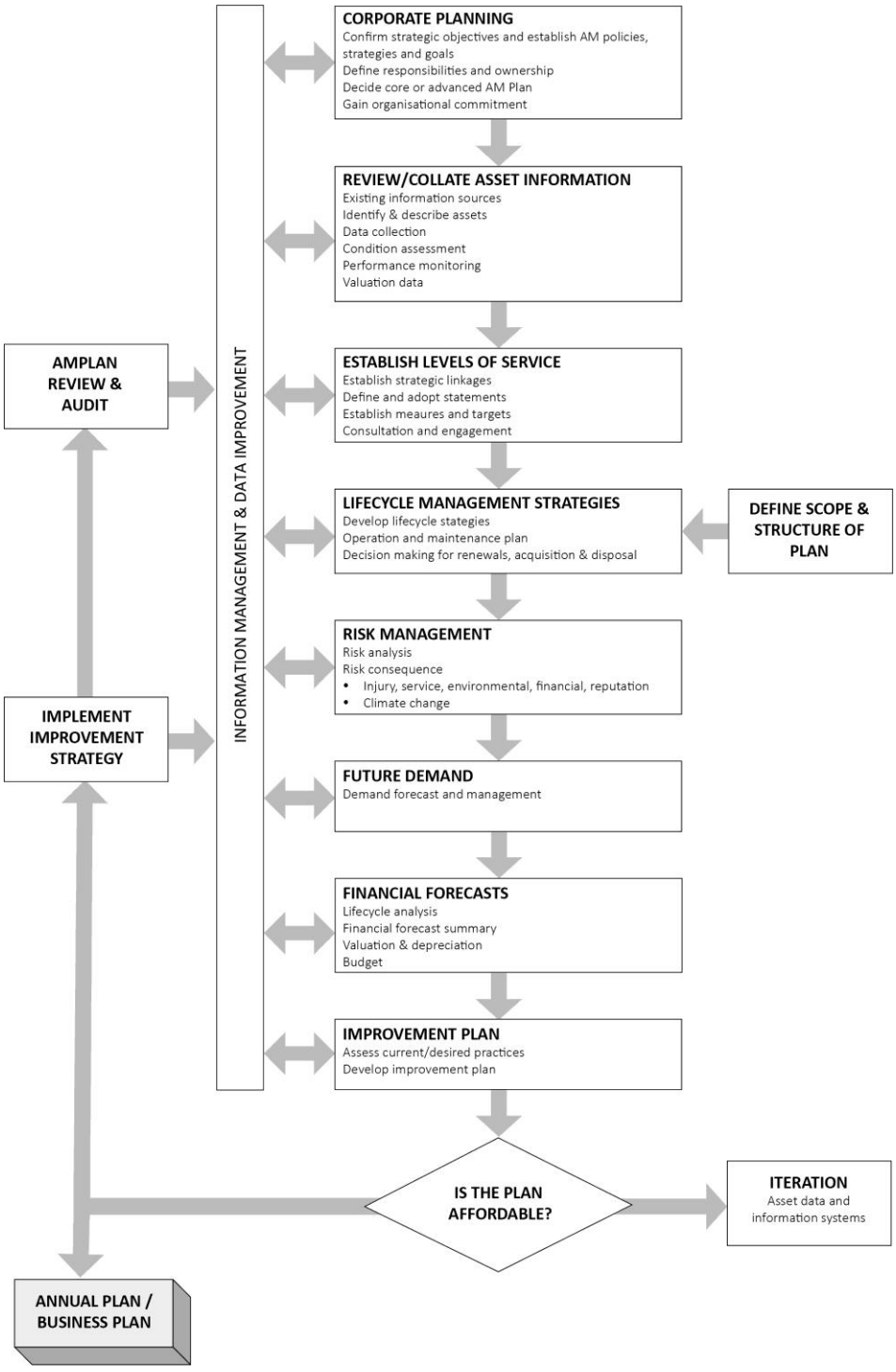
- International Infrastructure Management Manual 2015 [1]
- ISO 55000[2]

A road map for preparing an AM Plan is shown below.

[1] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13
[2] ISO 55000 Overview, principles and terminology

Road Map for preparing an Asset Management Plan

Source: IPWEA, 2006, IIMM, Fig 1.5.1, p 1.11



3.0 LEVELS OF SERVICE

3.1 Customer Research and Expectations

The County pursued feedback from the public on the current condition of assets, including trails, parking lots and other infrastructure assets like signage, along with expectations for future maintenance and renewal through an online survey over a three (3) week period in October 2023. Table 3.1 below illustrates the overall satisfaction levels of respondents for each of the asset categories covered in this plan.

Table 3.1: Customer Satisfaction Survey Levels

Performance Measure	Satisfaction Level				
	Very Satisfied	Fairly Satisfied	Satisfied	Somewhat satisfied	Not satisfied
Overall condition of Forest related Infrastructure.	17%	46%	27%	7%	3%
Capacity of Forest related Infrastructure.	14%	44%	31%	8%	3%

3.2 Strategic and Corporate Goals

This AM Plan is prepared under the direction of the County vision, mission, goals and objectives.

Our vision is:

To bring together people, partnerships, and possibilities for a strong and vibrant Northumberland County.

Our mission is:

To be a best practices leader of County Government and a collaborative partner with our member municipalities and community partners.

Strategic goals have been set by the County. The relevant goals and objectives and how these are addressed in this AM Plan are summarised in Table 3.2.

Table 3.2: Goals and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in the AM Plan
Propel Sustainable Growth	Maintain and grade 5 parking lots	Continue to maintain all 5 parking lots, grading when necessary
Propel Sustainable Growth	Inspect all trails, brush, and prune according to established standards.	Staff and licensed organizations follow trail standards to maintain official trails.
Propel Sustainable Growth	Inspect, monitor, and restore habitats and species, keep the current "carry out as is"	Carry out ecological conservation and restoration activities that meet targets identified in plans.
Propel Sustainable Growth	Move plantation to healthy naturally diverse forests.	Through recognized silviculture, restoration and thinning and monitoring.
Foster a Thriving Community	Evaluate needs/opportunities for new trails, rerouting of existing trails.	Continue to improve understanding of forest use through refined trail user counters and satisfaction surveys.
Champion a Vibrant Future	Gather feedback from the public on LOS related to our infrastructure and service delivery and educate the public on budget considerations and the consequence of selecting different options/priorities.	Inclusion of further public consultation and education as part of the improvement plan to further inform all aspects of the AM Plan.

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the Natural Heritage assets are outlined in Table 3.3.

Table 3.3: Legislative Requirements

Legislation	Requirement
Ontario Weed Control Act, 1990	Every person in possession of land shall destroy all noxious weeds on it.
Infrastructure for jobs and Prosperity Act, 2015	To develop a Strategic Asset Management Policy as well as an Asset Management Plan in accordance with the technical requirements set out in O. Reg. 588/17.

Legislation	Requirement
Endangered Species Act, 2007	Identify species at risk based on the best available scientific information. To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk.
Fish and Wildlife Conservation Act, 1997	Concerns the conservation and use of fish and wildlife resources in Ontario.
Forestry Act, 1990	The Council of any municipality may enter into agreements with the owners of land located in the municipality providing for, the reforestation of portions of the land, the entry and planting of trees upon such portions, and the fencing of the portions and conservation of all growing trees thereon by the owner.
Off-Road Vehicles Act, 1990	Concerns the use of any off-road vehicle in Ontario.
Accessibility for Ontarians with Disabilities Act, 2005	Concerns developing, implementing, and enforcing accessibility standards in order to achieve accessibility for Ontarians with disabilities.
Greenbelt Act, 2005	Establish a network of countryside and open space areas which supports the Oak Ridges Moraine.
Highway Traffic Act, 1990	Regulates the licensing of vehicles, classification of traffic offenses, administration of loads, classification of vehicles, and other transportation related issues.
Invasive Species Act, 2015	Regulates the prevention and management of invasive species in Ontario.
Migratory Bird Conventions Act, 1994	Ensures the protection of migratory birds, their eggs, and their nests.
Motorized Snow Vehicles Act, 1990	Concerns the use of motorized snow vehicles in Ontario with regards to permits, trails, and other uses.
Municipal Act, 2001	Each municipality is given powers and duties under this Act for the purpose of providing good government with respect to those matters.
Municipal Freedom of Information and Protection of Privacy Act, 2001	Regulates the use and protection of information and how it is made available.
Oak Ridges Moraine Conservation Act, 2001	Concerns protecting the ecological and hydrological integrity of the Oak Ridges Moraine Area and maintaining, restoring, and improving the area.
Occupiers' Liability Act, 1990	An occupier of premises owes a duty to take such care as in all the circumstances of the case is reasonable to see that persons entering on the premises, and the property brought on the premises by those persons are reasonably safe while on the premises.

Legislation	Requirement
Ontario Trails Act, 2016	To increase awareness about and encourage the use or trails and well as enhance trails and their experience.
Species at Risk Act, 2002	The purposes of the Act are to prevent Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, and encourage the management of other species to prevent them from becoming at risk.
Trespass to Property Act, 1990	Prohibits trespassing under certain conditions. It allows for property owners to outline prohibited activities on their property and, if contravened, the occupier (the property owner) can ban a person from entering their property.

3.4 Growth Considerations

The Northumberland County Official Plan (OP) is currently being updated to guide growth and development in Northumberland over the next 30 years. These updates align with Provincial legislation that requires municipalities to review and update their Official Plan every few years.

Current population and employment forecasts indicate that Northumberland County will grow to 122,000 people and 44,000 jobs by the year 2051. Most of this growth is expected to be concentrated in fully serviced urban areas however, there will be some housing growth in the rural areas. As a result, there will be added pressure on Natural Heritage assets and the potential need for upgrades or expansion based on service levels and potential new legislation. The updated Official Plan will include updated maps and policies related to long-term growth and land needs within Northumberland.

Review and update of this AM Plan will be required once the OP update is complete to incorporate any changes with respect to future needs identified as a result of growth and development.

3.5 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

Customer Values indicate:

- what aspects of the service is important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provisions

Table 3.5: Customer Values

Service Objective: Provide a safe, functional, and well-maintained County Forest.			
Customer Values	**Customer Satisfaction Measure**	**Current Feedback**	**Expected Trend Based on Planned Budget**
A trail network with clear signage that is continuous and predictable.	Annual number of customer complaints relating to navigation/signage on trails as well as feedback from satisfaction surveys.	Few to no complains about signage or trail navigation.	Receive few or no complaints.
Forest parking lots are smooth and free of potholes.	Annual number of customer complaints relating to navigation/signage on trails as well as feedback from satisfaction surveys.	Three of the five parking lots have been recently graded and are in good condition. Few complaints due to potholes on parking lots that have not been recently graded.	Continue to receive complaints on condition of parking lots as they deteriorate.
Trail maintenance, trails free of tree hazards and vegetation	Feedback from satisfaction surveys.	Few complaints about trail maintenance.	Continue to receive complaints on condition of trails as they deteriorate due to lack of funding.

Service Objective: Effectively communicate closures and/or maintenance with the public while considering the environment and sustainability.			
Customer Values	**Customer Satisfaction Measure**	**Current Feedback**	**Expected Trend Based on Planned Budget**
The County will keep its customers informed about its activities and respond promptly to inquires and complaints.	Annual number of customer complaints relating to closures and maintenance activities.	Few to no complains about closures or maintenance activities.	Receive few or no complaints.
The County will consider the environmental impacts of asset maintenance, operations, and construction projects.	Annual # of service requests related to environmental issues/complaints (i.e. water body contamination, wildlife, etc.)	Few to no complains about closures or maintenance activities.	Receive few or no complaints.
Demonstrate leadership in sustainable asset management and invest in preventative maintenance and rehabilitation when most beneficial.	What we hear from Council, our superiors, public? Comments/concerns during PICs, service requests regarding specific projects, request for memos, request for information/clarification/presentations/etc.	Few inquiries annually regarding budgeting process.	Remain the same or potential increase with increasing community expectations and as infrastructure continues to age.

3.6 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

Condition How good is the service … what is the condition or quality of the service?

Function Is it suitable for its intended purpose …. Is it the right service?

Capacity/Use Is the service over or under used … do we need more or less of these assets?

Communication Are impacts to the service communicated to the public? Is the public aware of service changes?

Environmental Impacts How is the environment impacted? Do service activities consider this?

Sustainability How is the budget allocated to services? How are works prioritized?

In Table 3.6 under each of the service measures types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

Table 3.6: Customer Level of Service Measures

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	Organizational Measure	Customer satisfaction survey and inspections completed	90% of people responded that they were Satisfied, Fairly Satisfied, or Very Satisfied with the overall condition of the Forest	Anticipate the current performance to stay the same or slightly decrease if funding is not increased.
	Confidence levels		Medium Professional judgement supported by customer satisfaction survey.	Medium Professional judgement supported by analysis of data and forecasted funding.
Function	Organizational Measure	Customer satisfaction survey	53% of people responded that they were Satisfied, or Very Satisfied with the function of the Forest.	Anticipate the performance to decrease if funding does not allow for separation of motorized vehicles and foot traffic on busy trails.
	Confidence levels		Medium Professional judgement supported by customer satisfaction survey.	Medium Professional judgement supported by analysis of data and forecasted funding.
Capacity	Organizational Measure	Trail counter	100,000 visitors to Forest trails in 2022.	Number of visitors will likely increase year over year as population in Northumberland County grows. This will mean more maintenance activities will be needed on trails as well as more parking spaces.

	Confidence levels		High Professional judgement supported by data from trail counter.	Medium Professional judgement supported by analysis of data and forecasted funding.
Communication	Organizational Measure	Notice of Construction, Notice of study commencement	27 social media posts regarding maintenance, prescribed burns, and timber harvesting	Anticipate increased public communication with increasing capital works program, studies and EA's through various means.
	Confidence levels		High Based on data collected through Communications Department for project notification, public consultation, social media, etc.	High Increase in Communications Department Staff for Major Projects; increasing public consultation requirements and expectations for projects and studies.
Environmental Impacts	Organizational Measure	Description of the measures in place to minimize the environmental impacts of construction works etc.	Required permits are obtained from local conservation authorities for scheduled work; implementation of dust control, stream protection and erosion control measures; using various paving methodologies such as Cold-in-Place Recycling to reduce waste and re-use existing material.	Remain the same or potentially increase.

	Confidence levels		High Implementing required environmental mitigation measures on construction projects through documented permits and regulatory approvals as well as following best management practices for construction.	Medium Continue to implement best management construction practices and follow legislative requirements; could be potential future changes based on policy or legislative changes.
Sustainability	Organizational Measure	Long-term plan, lifecycle models, purchasing protocol	10-year long-term financial plan is in place and updated annually; Development and approval of AMP; Purchasing by-law in place.	AMP will be approved, additional AM data will be available through CW for assets and more complex lifecycle modelling will have been completed.
	Confidence levels		Medium Based on engineering judgement and compilation, review, and analysis of existing data.	Medium Availability of additional data, however, resourcing may be required to complete more complex lifecycle modelling and analysis.

3.7 Technical Levels of Service

Technical Levels of Service – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

- **Acquisition** – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).
- **Operation** – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc.
- **Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs),
- **Renewal** – the activities that return the service capability of an asset up to that which it had originally provided (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.[3]

Table 3.7 shows the activities expected to be provided under the current 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

Table 3.7: Technical Levels of Service

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
Acquisition	Increase the size of the forest.	Lands added to the size of the forest.	0-2km/year	This is dependent on opportunities that arise, and land availability can't be forecasted.
	Picnic and rest area development.	Total number of new areas developed.	0 new areas.	1 new area.
		Budget	*$0*	*$35,000*
Operation	Hazard tree removal	Total number of trails with hazardous trees	As required.	As required.

[3] IPWEA, 2015, IIMM, p 2|28.

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
		removed annually.		
		Budget	*$76,378*	*$76,378*
Maintenance	Parking lot maintenance	Number of parking lots per year	On an as needed basis with worst conditions being maintained first.	Complete all identified repair work.
	Tread maintenance	Number of times per year	Repair areas that need the most maintenance first. Assessed for grading needs annually.	Repair areas that require significant ongoing/recurring maintenance. Assessed biannually.
	Prescribed burns	Number of burns per year	2/year	3/year
	Maintain natural forest habitat.	Invasive species management	Areas of high priority are noted.	Areas of high priority continue to be noted. Future integrated Pest management plan to address each area.
	Healthy diverse Forest	Thin forest following Silviculture Plan.	20 year and 5 year Silviculture plan adhered to.	Scheduled thinning performed following schedule.
	Upgraded trails identified through Forest Management Plan.	Total number of metres per year that is upgraded.	0-2km/year	All trails monitored. High priority unsafe trails rerouted or fixed.
		Budget	*$107,160*	*$257,160*
Renewal	Signage replacement	Total number of signs replaced annually	Signs are not currently being replaced.	Replace all faded signage and signage that has graffiti.
	Parking lot surface treatment	Number of parking lots per year	On an as needed basis with worst conditions being treated first.	Surface treatment to all 5 parking lots.
	Kiosk replacement	Total number of kiosks replaced annually	Kiosks have not been replaced.	Replace kiosks when they show signs of wear and are faded.
		Budget	*$135,000*	*$344,441*

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
Disposal	Trail Closures	Metres per year	Trails have been identified for closure.	Remove trails that are poorly designed receive little use.
	Sand Pit Closures	Number of sand pits	Two sand pits have been identified for closure.	Pile debris in strategic areas to limit access.
		Budget	*$0*	*$0*

Note: * Current activities related to Planned Budget.

** Expected performance related to forecast lifecycle costs.

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

4.0 FUTURE DEMAND

4.1 Demand Drivers

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

4.3 Demand Impact and Demand Management Plan

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 4.3.

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in Table 4.3. Further opportunities will be developed in future revisions of this AM Plan.

Table 4.3: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Population Change	The County population is currently 89,365 (Statistics Canada, 2021 Census Data), an increase of 4.4% since 2016.	Increase in population to 122,000 by 2051 (current Provincial Forecasts).	More people using trails. Possibly more litter and destruction.	Increase in maintenance activities. Development of more trails and more trash facilities.
Climate Change: Intense Storms	Intense storm becoming more frequent. (2-3 per year)	Increase in intense storms due to climate change.	Increased frequency and intensity of storms resulting in high winds and severe weather. This can cause washouts/erosion as well as falling tree/tree damage causing trail closures.	Vegetation management. Increased restoration efforts after extreme weather.

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Wildfires	Wildfires can be in issue with drier climates and less precipitation.	Increase in wildfires due to climate change.	Dry organic matter on forest floor increases risk of forest fire. Decline in tree health increases dead wood fuel.	Structural Changes: Reduced fuel loads in thinned stands. Future rehabilitation will consider potential impacts of climate change and aim to alleviate this. Prepare a wildfire risk reduction and control management plan. Prescribed burning, forest thinning, forest conversion.
Invasive Species	Invasive species are being treated through brush sawing and chemical treatments, but overall invasive species are becoming more prevalent in the Forest.	Increase in invasive species as they continue to grow.	Large outbreaks can kill trees and vegetation can overrun trail network.	Research cost effective strategies for tackling invasive species as well as implementing an invasive species monitoring and control protocol.

4.4 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in Section 5.5.

Acquiring new assets will commit the County to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 5).

4.5 Climate Change Adaptation

The impacts of climate change may have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process climate change can be considered as both a future demand and a risk.

How climate change impacts on assets will vary depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.[4]

[4] IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region. A Climate Adaptation and Resiliency Plan is expected to be completed in 2025, providing further analysis of the impacts of climate change on County assets and operations and identifying actions to build resilience.

Risk and opportunities identified to date are shown in Table 4.5.1

Table 4.5.1 Managing the Impact of Climate Change on Assets and Services

Climate Impact Description	Projected Change	Potential Impact on Assets and Services	Management
Intense storms	Increased frequency and intensity of storms resulting in high winds and severe weather.	Damage to assets, trail closures, and hazardous trees.	Vegetation management to reduce likelihood of trees falling and trees damaging assets.
Increased temperatures	Summer temperatures are expected to be hotter with more extreme heat.	Increasing temperatures can cause deteriorating asset conditions. They can also cause drought and increase risk of wildfires.	Increased response needs for invasive species and altered approaches to planting and silviculture methods.
Heavy precipitation	Increase in the number of heavy precipitation days falling as rain, freezing rain and/or snow.	Heavy precipitation can cause flooding, erosion, and potholes.	Modify operations and maintenance activities to meet needs including pothole repair in parking lots and trail repair to mitigate flooding and erosion.

Additionally, the way in which we construct new assets should recognize that there is opportunity to build in resilience to climate change impacts. Building resilience can have the following benefits:

- Assets will withstand the impacts of climate change;
- Services can be sustained; and
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

Table 4.5.2 summarizes some asset climate change resilience opportunities.

Table 4.5.2 Building Asset Resilience to Climate Change

New Asset Description	Climate Impact These assets?	Build Resilience in New Works
New kiosks in forest parking lots	Heavy winds, rain, and sun are damaging current kiosks.	New kiosks will be more resilient against wind and rain as well as have a protective cover to prevent sun damage.
Plant new trees that are more drought adaptive	Mixedwood Plain Ecozone more susceptible to drought in the future.	Thinned stands require less water and may be less vulnerable to water stress.

The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this AM Plan.

5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the County plans to manage and operate the assets at the agreed levels of service (Refer to Section 3) while managing life cycle costs.

5.1 Background Data

5.1.1 Physical parameters

The assets covered by this AM Plan are shown in Table 5.1.1.

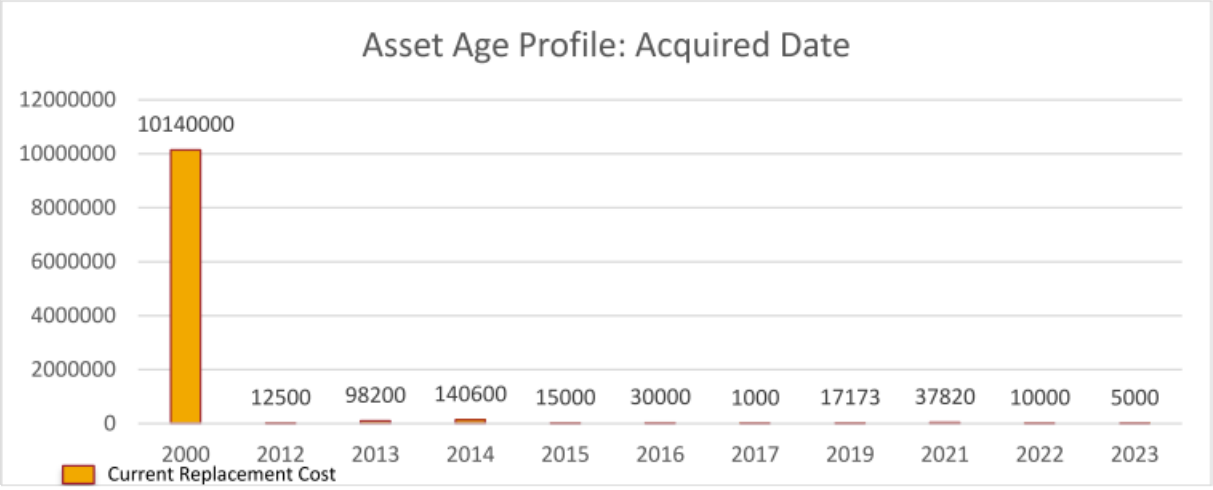
These assets include the infrastructure assets that provide forest recreation in Northumberland County.

The age profile of the assets included in this AM Plan are shown in Figure 5.1.1.

Table 5.1.1: Assets covered by this Plan

Asset Category	Dimension	Replacement Value
Forest	2235ha	$8,940,000
Trails	217km trails 6km access roads	$1,180,000
Infrastructure	5 parking lots 1145 trail signs 4 arch ways 27 benches 78 boulders 6 trail use counters 28 gates 3 garbage receptacles 5 kiosks 3 picnic tables 900m wooden fence	$387,295
TOTAL		**$10,507,295**

Figure 5.1.1: Asset Age Profile – Acquired Date



All figure values are shown in 2024 dollars.

Figure 5.1.1 illustrates the date acquired for the Natural Heritage assets. The dates were assumed for many of the assets which explains the significant spike in 2000 when the Forest was acquired by Northumberland County. Most of the spike can be attributed to the Forest which would not be replanted all at once, rather small parts are renewed over time as necessary meaning there would not be a large spike like is shown in the graph. Aside from the Forest, the infrastructure assets are still in the middle of their lifecycle and thus many are still in good condition.

5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Beagle Club Parking Lot	The Beagle Club parking lot is not large enough to hold all of the visiting vehicles, especially on long weekends and during events. With the increasing population it is predicted that, without increasing the size of the parking lot, this issue will get worse over time.
Trails – maintenance and operation activities	Maintenance and operation activities such as brushing, and hazard tree removal are underfunded and generally dealt with in a reactive manner. Increased funding for such activities would mean completing activities in a proactive manner before they get out of hand. Furthermore, some trail signs need repair/replacement due to fading or graffiti.

The above service deficiencies were identified from surveys, data analysis, and available historical data.

5.1.3 Asset condition

Condition is currently monitored through inspections. Staff inspect trails and infrastructure such as signage and report on the condition.

Condition is measured using a 1 – 5 grading system[5] as detailed in Table 5.1.3. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the AM plan results are translated to a 1 – 5 grading scale for ease of communication.

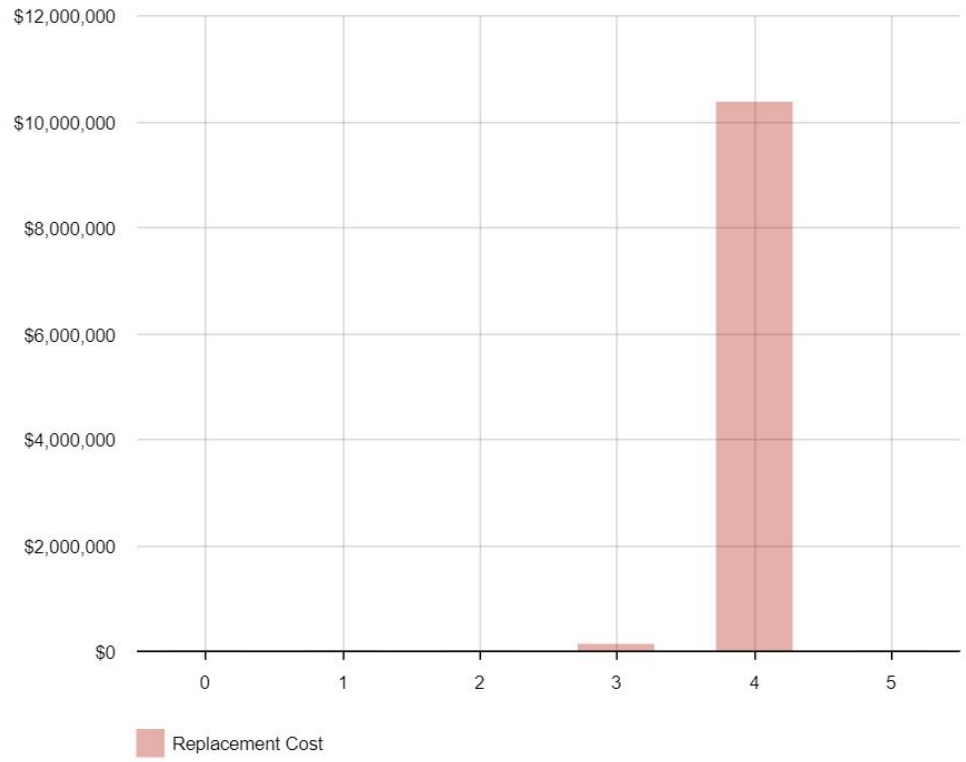
Table 5.1.3: Condition Grading System

Condition Grading	Description of Condition
5	**Very Good**: free of defects, only planned and/or routine maintenance required
4	**Good**: minor defects, increasing maintenance required plus planned maintenance
3	**Fair**: defects requiring regular and/or significant maintenance to reinstate service
2	**Poor**: significant defects, higher order cost intervention likely
1	**Very Poor**: physically unsound and/or beyond rehabilitation, immediate action required

The condition profile of our assets is shown in Figure 5.1.3.

[5] IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

Figure 5.1.3: Asset Condition Profile



All figure values are shown in 2024 dollars.

Most of the Natural Heritage assets are in good condition, due to their early lifecycle stage. As the assets age and near the end of their useful life it is expected that they will move to poor or critical condition. The assets that are in fair condition are the parking lots that have not been graded recently as well as the access roads which need maintenance. If the assets in fair condition do not get the required maintenance, they will have a negative impact on service as they will start breaking down and may need to be closed.

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include cleaning, vegetation removal, asset inspection, and utility costs.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating. Examples of typical maintenance activities include grading and trail repairs.

The trend in maintenance budgets are shown in Table 5.2.1.

Table 5.2.1: Maintenance Budget Trends

Year	Maintenance Budget $
2023	$53,000
2024	$107,160
2025	$158,425

Maintenance budget levels are considered to be inadequate to meet projected service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this AM Plan and service risks considered in the Infrastructure Risk Management Plan.

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement.

Asset hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

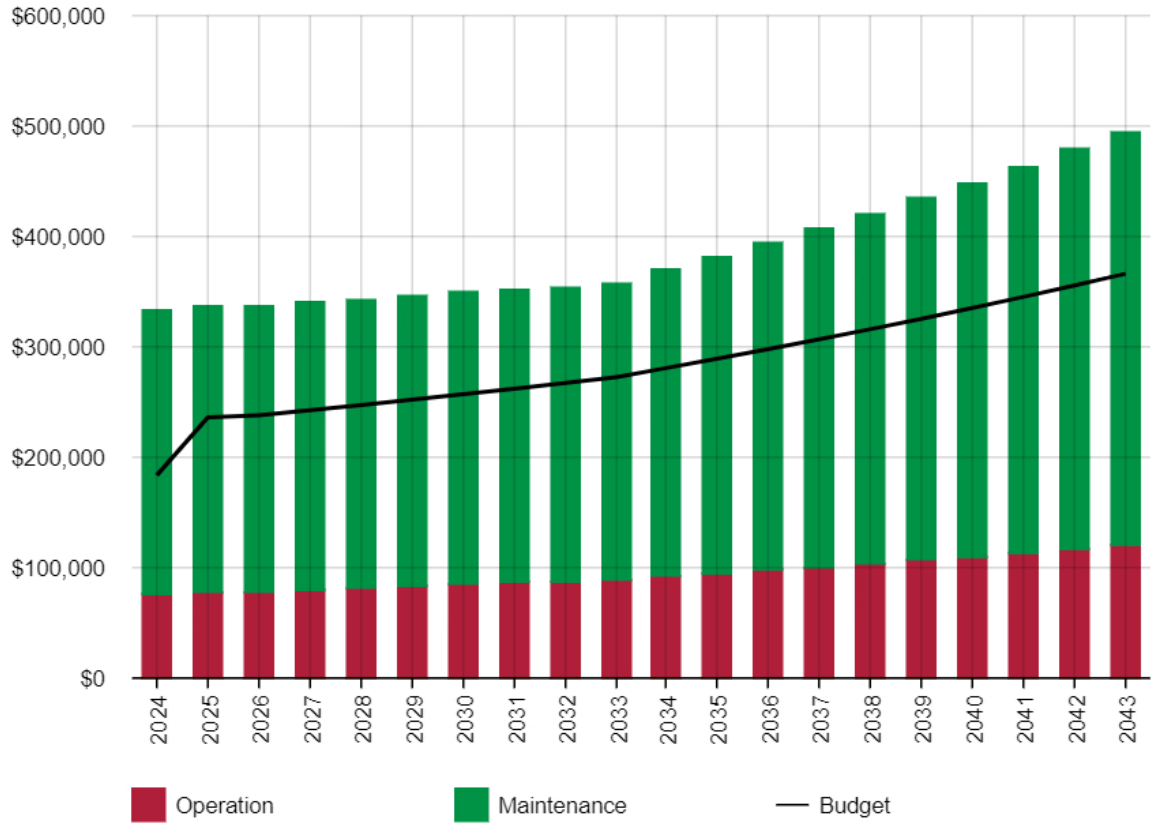
The County does not currently have a formal hierarchy framework in place however, several factors are considered when making decisions related to service planning and delivery of natural assets. Information provided from inspections are key components that are evaluated. Social and political feedback, as well as development pressures, are also taken into consideration.

Additionally, legislative requirements impact the delivery of these asset groups and outline the responsibility of the County to complete the required maintenance and operations work.

Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. Figure 5.2 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

Figure 5.2: Operations and Maintenance Summary



All figure values are shown in 2024 dollars.

The current and future operations and maintenance forecasts are not within the current annual and forecasted budgets. The County operates and maintains the natural heritage assets to ensure compliance with all legislations including Forest Stewardship Council certification by completing inspections. The operation and maintenance activities are prioritized based on criticality of the asset while managing user expectations. It is critical to meet the required operational and maintenance needs to extend service lives and reduce lifecycle cost.

It is clear from the above figure that the planned budget does not meet all operations and maintenance requirements, with a shortfall of $99,170 on average per year over the 2024-2033 period. As a result, some works will be deferred. Deferred maintenance refers to works that are identified for maintenance activities but unable to be completed due to available resources.

5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces, or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an acquisition resulting in additional future operations and maintenance costs.

Assets requiring renewal are identified from one of two approaches in the Lifecycle Model.

- The first method uses Asset Register data to project the renewal costs (current replacement cost) and renewal timing (acquisition year plus updated useful life to determine the renewal year), or
- The second method uses an alternative approach to estimate the timing and cost of forecast renewal work (i.e. condition modelling system, staff judgement, average network renewals, or other).

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives were last reviewed through the development of this plan.[6]

Table 5.3: Useful Lives of Assets

Asset (Sub)Category	Useful life
Natural (Forest)	50 years
Trails	50 years
Access Roads	15 years
Parking Lots	15 years
Trail Signs	10 years
Gates	10 years
Wooden Fence	5 years
Picnic Tables	5 years
Kiosks	5 years
Garbage Receptacle	5 years
Trail Use Counter	5 years
Boulders	30 years

The estimates for renewals in this AM Plan were based on the Alternate Method.

5.3.1 Renewal ranking criteria

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g., replacing a sign that has faded), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g., condition of a playground).[7]

It is possible to prioritise renewals by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be significant,

[6] Enter Reference to Report documenting Review of Useful Life of Assets
[7] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

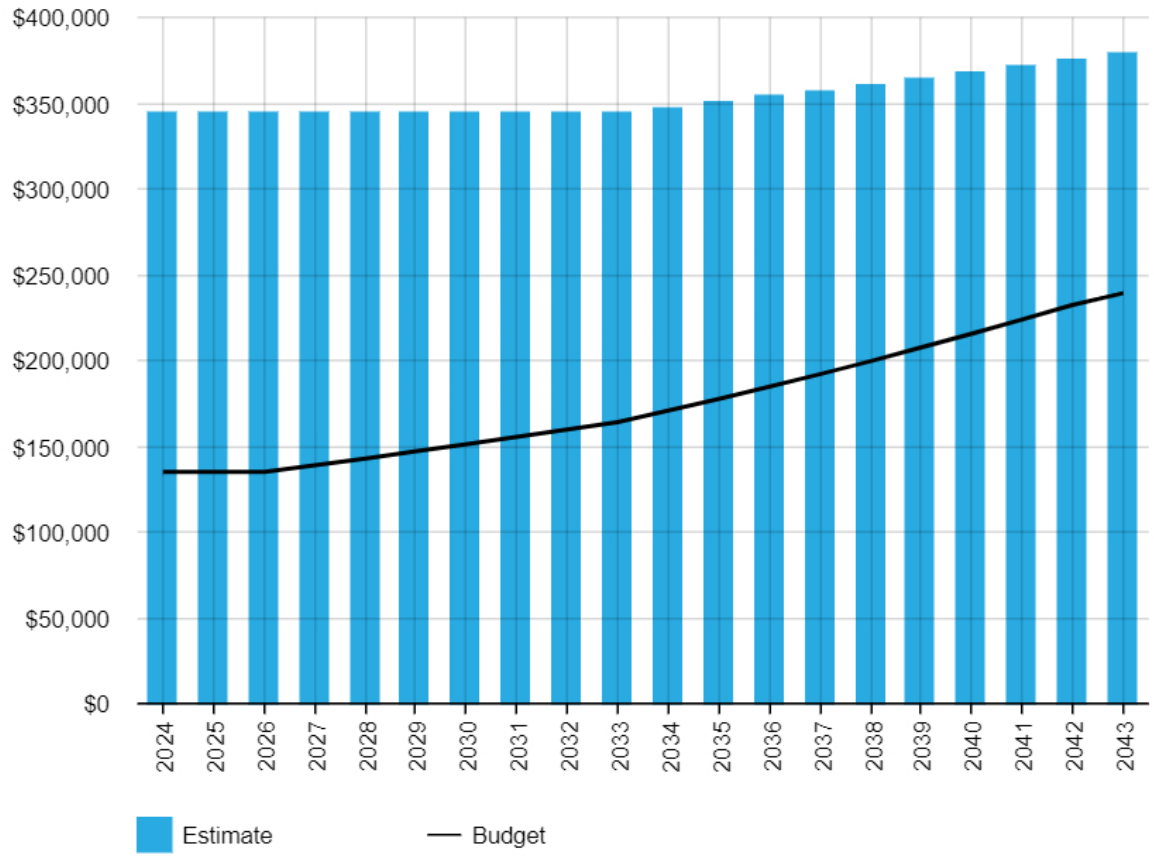
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.[8]

Currently, the County does not have a formal ranking criteria to determine priority of identified renewal and replacement proposals for Natural Heritage assets. However, information provided from inspections, trail traffic counts, consultant recommendations, studies and staff knowledge are used to determine renewal and replacement schedules.

5.4 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in Figure 5.4.1. A detailed summary of the forecast renewal costs is shown in Appendix C.

Figure 5.4.1: Forecast Renewal Costs



All figure values are shown in 2024 dollars.

As evident in the above figure the renewal budget will not sustain the estimated renewal costs. Most infrastructure assets in the Forest are inexpensive to renew and in good condition, however the cost of the forest itself is extremely substantial. Small sections of forest can be renewed over the course of years rather than the entire forest at once, which

[8] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

is forecasted to cost an additional $100,000 per year on top of the $244,441 that it will cost per year to continue to renew the assets based on their useful life. Overall, there is an average deficit of $198,073 a year over the 10-year period.

5.5 Acquisition Plan

Acquisition reflects are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs. Assets may also be donated to the County.

5.5.1 Selection criteria

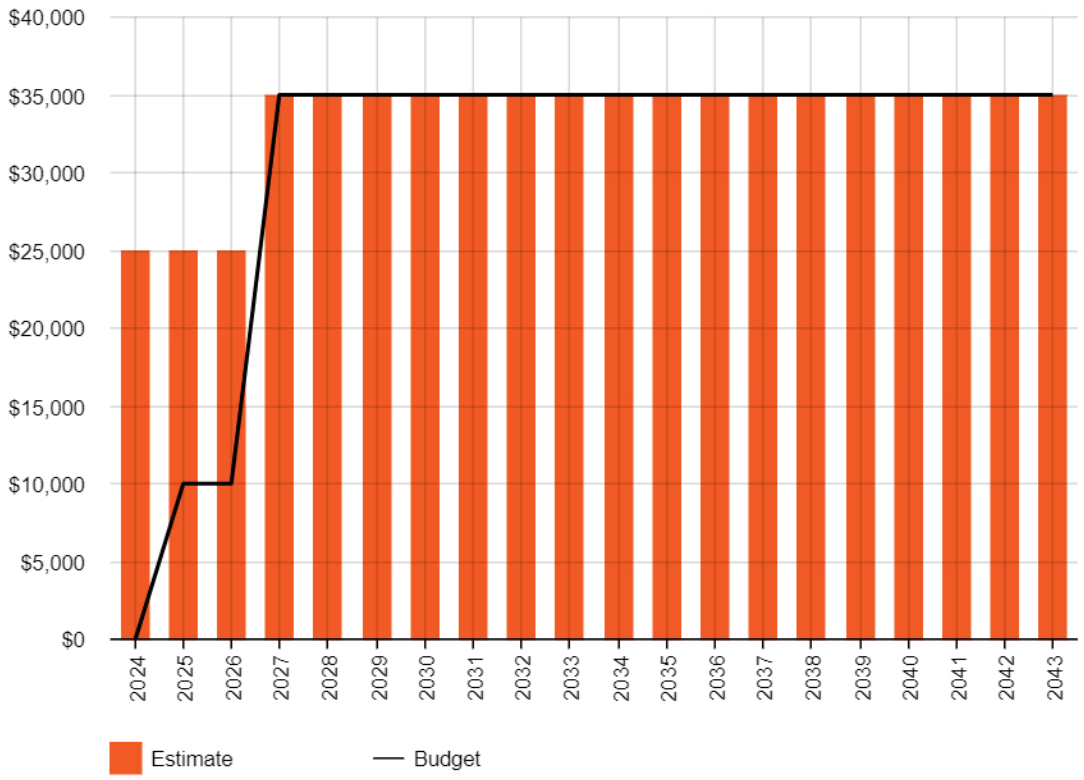
Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential to the Entities needs. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programs.

It is important to note that the County currently has a Countywide Development Charges by-law in place. These development charges assist in providing the infrastructure required by future development in the County through the establishment of a viable capital funding source to meet the County's financial requirements.

Summary of future asset acquisition costs

Forecast acquisition asset costs are summarized in Figure 5.5.1 and shown relative to the proposed acquisition budget. The forecast acquisition capital works program is shown in Appendix A.

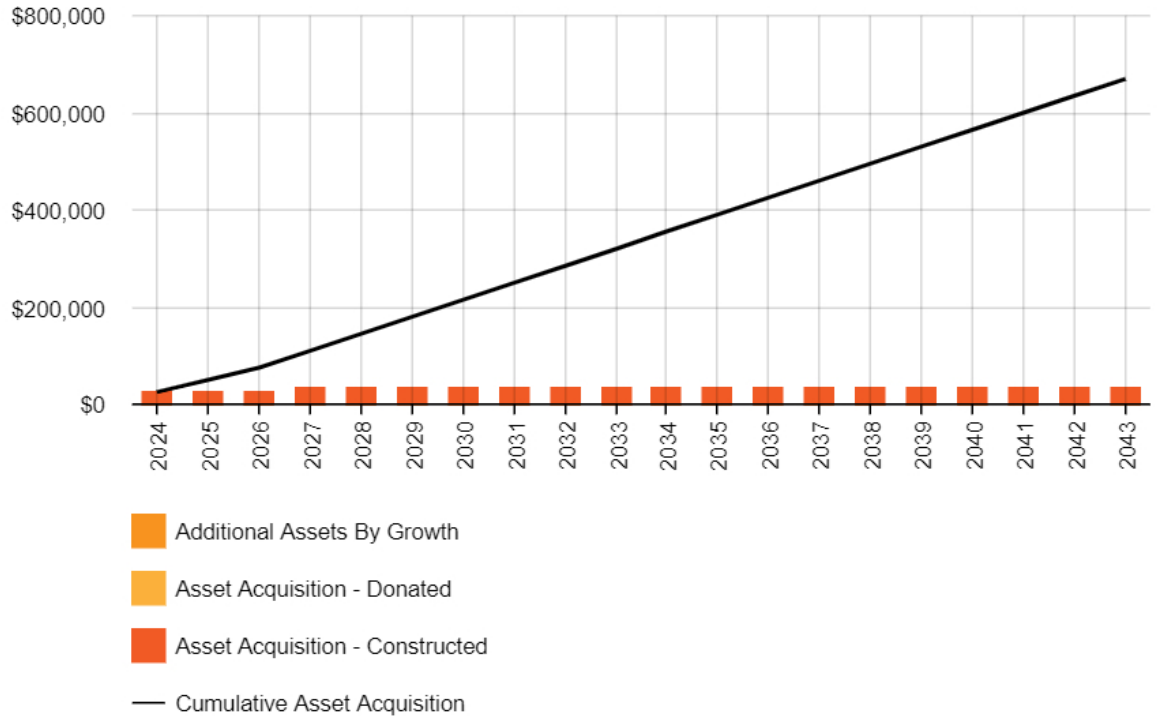
Figure 5.5.1: Acquisition (Constructed) Summary



All figure values are shown in 2024 dollars.

When an Entity commits to new assets, they must be prepared to fund future operations, maintenance, and renewal costs. They must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by the Entity. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 5.5.2.

Figure 5.5.2: Acquisition Summary



All figure values are shown in 2024 dollars.

Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding.

Planned acquisition over the 20-year planning period as depicted in Figure 5.5.2 includes land acquisition which will ensure future growth of the forest. Additional trails may be built, particularly to ensure safety and improve the current line of existing trails as well.

5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in Table 5.6. Any costs or revenue gained from asset disposals is included in the long-term financial plan.

Table 5.6: Assets Identified for Disposal

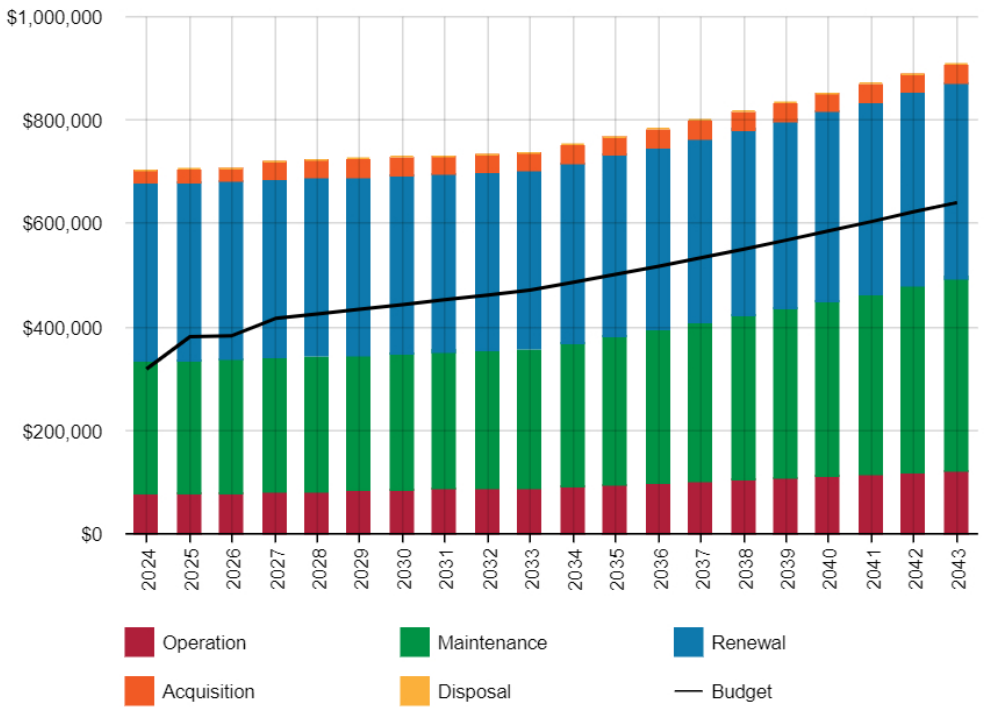
Asset	Reason for Disposal	Timing	Disposal Costs	Operations & Maintenance Annual Savings
Trails – Unnamed section from Busch Rd to Green A/B split & Section of Thomas Trail from Wilson ton Busch Rd.	Steep and prone to erosion; very little use	When time allows	$0 (stopping up with brush/natural growth)	$0

5.7 Summary of asset forecast costs

The financial projections from this asset plan are shown in Figure 5.7.1. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimize the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

Figure 5.7.1: Lifecycle Summary



All figure values are shown in 2024 dollars.

The figure above illustrates that the County does not have sufficient funds in the budget, represented by the black line, to meet the forecasted needs over the planning period. Over the first 10 year planning period, there is a shortfall of $302,743 on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the planned budget. The aging assets and addition of new assets acquired along with increasing maintenance costs will further exacerbate this shortfall if maintenance and operations budgets are not adjusted to account for this. As a result, some maintenance, operations, and renewal activities will continue to be deferred moving forward.

6.0 RISK MANAGEMENT PLANNING

The purpose of infrastructure risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: 'coordinated activities to direct and control with regard to risk'[9].

An assessment of risks[10] associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarized in Table 6.1. Failure modes may include physical failure, collapse or essential service interruption.

Table 6.1 Critical Assets

Critical Asset(s)	Physical Limitations	Impact
Access Roads – Morris 16	Needs armour and visibility improvements at hill	Closed to traffic due to dangerous hill
Trails – Ridge Road	Crossing is very dangerous with no visibility.	Closed due to dangerous conditions or re-routed.

By identifying critical assets and failure modes an organization can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

6.2 Risk Assessment

The risk management process used is shown in Figure 6.2 below.

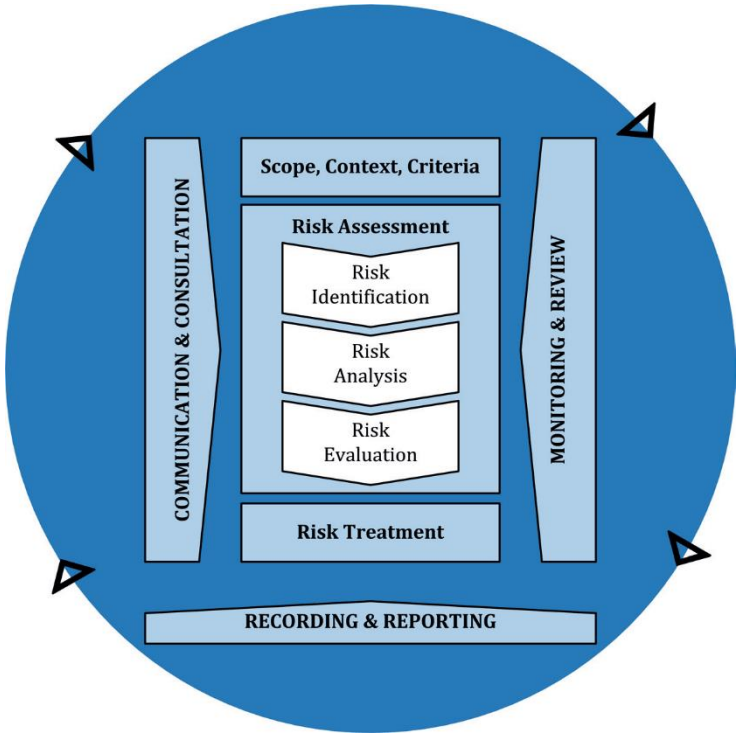
[9] ISO 31000:2009, p 2

[10] REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

It is an analysis and problem-solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of International Standard ISO 31000:2018.

Fig 6.2 Risk Management Process – Abridged



Source: ISO 31000:2018, Figure 1, p9

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, development of a risk rating, evaluation of the risk and development of a risk treatment plan for non-acceptable risks.

An assessment of risks[11] associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in Table 6.2. It is essential that these critical risks and costs are reported to management and County Council.

[11] REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

Table 6.2: Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Trail Network	Trail Closure	H	Reactive repairs, trail inspections	L	Staff and equipment time, contracted services, operation budget
Natural (Forest)	Loss of healthy resilient habitats	H	Restoration of habitats, including species removal, planting	H	Cost for site preparation, cost for planting, seeding, monitoring
Natural (Forest)	Loss of healthy forest	M	Conversion of plantations to mixed deciduous forest	L	Signage, maintenance actions used as demonstration areas
Natural (Forest)	Loss of tallgrass habitats	H	Prescribed burns to help maintain tallgrass communities and ensure habitat for unique species that use these habitats	M	Signage, education, prescribed burn costs
Natural (Forest and Trails)	Invasive Species	H	Implemented conservation programs that remove invasive species, completed vegetation surveys to	M	Labour costs, chemical treatments, specialized equipment

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
			document changes, engaged partners to share information, helped fund and promote projects, and improved scientific understanding and land management procedures.		
Trail Network	Off-Leash/ out of control dogs	H	Signage throughout forest. Update Bylaw	M	Updated signage and enforcement costs

Note * The residual risk is the risk remaining after the selected risk treatment plan is implemented.

6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions we need to understand our capacity to 'withstand a given level of stress or demand', and to respond to possible disruptions to ensure continuity of service.

Resilience is built on aspects such as response and recovery planning, financial capacity, climate change risk assessment and crisis leadership.

We do not currently measure our resilience in service delivery. This will be included in future iterations of the AM Plan.

6.4 Service and Risk Trade-Offs

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

6.4.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Complete all upgrades/ new assets to address future growth
- Complete all trail network re-routing and development
- Complete all access road maintenance
- Complete all invasive species maintenance

6.4.2 Service trade-off

If there is forecast work (operations, maintenance, renewal, acquisition or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- Deterioration of assets and reduced lifespan
- Failure of assets or use restrictions (i.e., potholes in parking lots, trail closures)
- Flooding/erosion
- Decrease in LOS

6.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may sustain or create risk consequences. These risk consequences include:

- Deterioration of assets to point of rehab instead of regular maintenance.
- Increased liability due to trail conditions
- Potential loss of service and decreased lifespan of assets due to deterioration
- Customer disappointment
- Increased lifecycle costs for not completing timely maintenance.

These actions and expenditures are considered and included in the forecast costs, and where developed, the Risk Management Plan.

7.0 FINANCIAL SUMMARY

This section contains the financial requirements resulting from the information presented in the previous sections of this AM Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

7.1 Financial Sustainability and Projections

7.1.1 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the AM Plan for this service area. The two indicators are the:

- Asset Renewal Funding Ratio (proposed renewal budget for the next 10 years / proposed renewal outlays for the next 10 years shown in the AM Plan), and
- Lifecycle Funding Ratio / proposed lifecycle budget (for the next 10 years / proposed lifecycle outlays for the next 10-years shown in the AM Plan).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[12] 42.49%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 42.49% of the funds required for the optimal renewal of assets.

The forecast renewal work along with the proposed renewal budget, and the cumulative shortfall where one exists, is illustrated in Appendix C.

Lifecycle Funding Ratio – 10 year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs required to provide an agreed, and affordable level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

The forecast operations, maintenance and renewal costs over the 10 year planning period is $689,501 on average per year.

The proposed (budget) operations, maintenance and renewal funding is $392,258 on average per year giving a 10 year funding shortfall of $297,243 per year. This indicates that 56.89% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the AM Plan and ideally over the 10 year life of the Long-Term Financial Plan.

[12] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

7.1.2 Forecast Costs (outlays) for the long-term financial plan

Table 7.1.2 shows the forecast costs (outlays) required for consideration in the 10 year long-term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the AM Plan and/or financial projections in the LTFP.

We will manage any 'gap' by developing this AM Plan to provide guidance on future service levels and resources required to provide these services in consultation with the community.

Forecast costs are shown in 2024 dollar values.

Table 7.1.2: Forecast Costs (Outlays) for the Long-Term Financial Plan

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2024	$25,000	$76,378	$257,160	$344,441	$0	$702,979
2025	$25,000	$77,687	$258,425	$344,441	$0	$705,553
2026	$25,000	$78,609	$259,380	$344,441	$0	$707,430
2027	$35,000	$80,063	$260,568	$344,441	$0	$720,072
2028	$35,000	$81,547	$261,779	$344,441	$0	$722,767
2029	$35,000	$83,061	$263,014	$344,441	$0	$725,516
2030	$35,000	$84,606	$264,275	$344,441	$0	$728,322
2031	$35,000	$86,183	$265,560	$344,441	$0	$731,184
2032	$35,000	$87,792	$266,871	$344,441	$0	$734,104
2033	$35,000	$89,433	$268,209	$344,441	$0	$737,083
Total	**$320,000**	**$825,359**	**$2,625,241**	**$3,444,410**	**$0**	**$7,215,010**

7.2 Funding Strategy

The proposed funding for assets is outlined in the Entity's budget and Long-Term financial plan.

The financial strategy of the entity determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

7.2.1 Budget Overview

Northumberland County adopted its first multi-year budget for the years 2024 to 2026. The multi-year budget will allow staff and council to focus on longer term planning. The 2024 - 2026 budget and long-term financial plan is aligned with the County's Strategic Plan 2023 - 2027. The existing strategic plan identifies four strategic priorities:

1. Innovate for Service Excellence
2. Ignite Economic Opportunity
3. Foster a Thriving Community
4. Propel Sustainable Growth
5. Champion a Vibrant Future

The property tax levy increase approved by council for the 2024 budget year is 8.57%. After growth, the increase to the existing property owner is 6.57%. This increase includes a 1% increase for the dedicated infrastructure levy and another 1% increase for a new dedicated social housing levy. Growth in the 2024 - 2026 budget was estimated at 2.0%.

Inflation has been a significant issue for the county operating and capital budgets. Inflation rose sharply in 2021 and 2022 and has remained somewhat elevated since then. Consumer prices rose during this time at their fastest rate since 1991. These increases in inflation are being driven by sustained housing prices, substantial supply chain constraints, and geopolitical conflicts. The Consumer Price Index measure of inflation has only recently dropped to 2.9% (12 month change) in March of 2024.

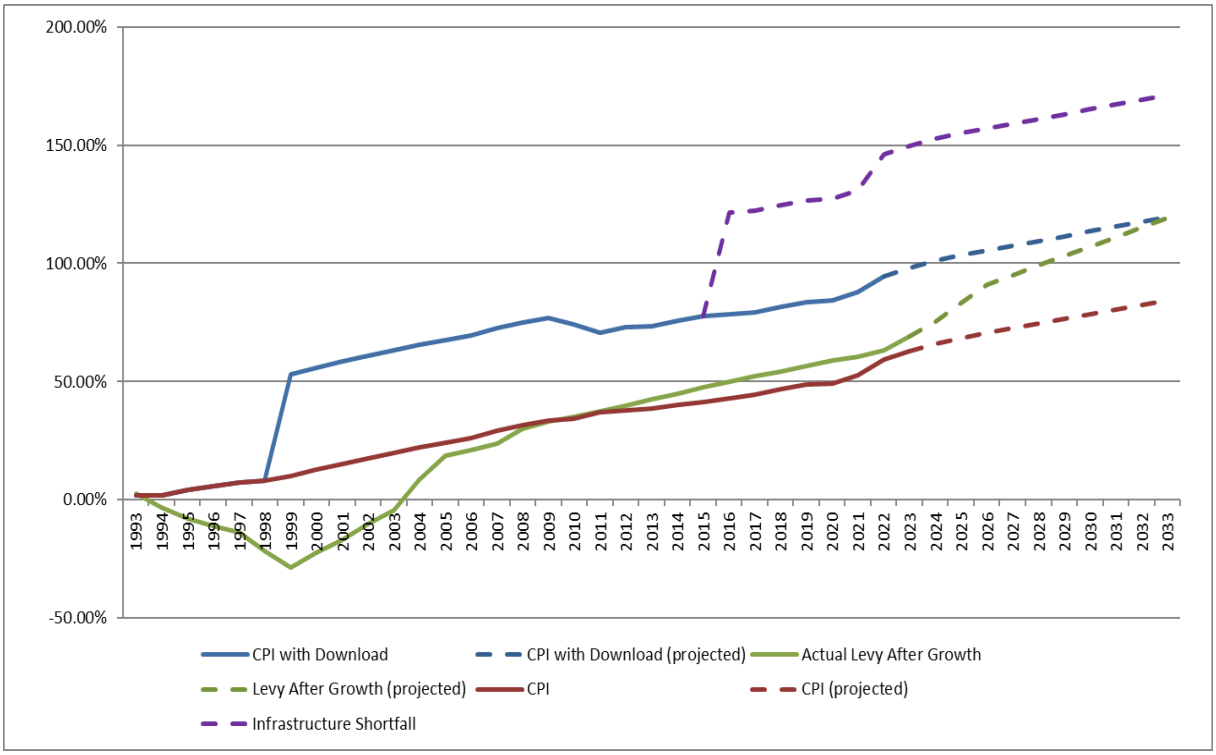
However, many of the goods and services purchased by the County move independently of the general rate of inflation as determined by a consumer basket of goods; therefore, CPI is not necessarily indicative of inflationary pressures experienced by the County. Expenditures such as construction and insurance for the County are impacted by other factors not typical of household consumers and far exceed the headline CPI index. The annual Non-residential Building Construction Index at the 4th quarter 2023 was 5.5% for the Greater Toronto Area. This represents a more indicative measure of costs related to County infrastructure construction projects. These increases exceed the County's dedicated annual increase to infrastructure investment within the 2024 - 2025 budget and the long-term plan. Impacts from price escalations related to construction type activities are being realized by the County currently with several recent tender awards coming in overbudget; therefore, requiring additional financing to initiate the works. These price escalations represent a significant risk to the County with several major construction projects underway and others contemplated in the near term and within the long term financial plan.

As mentioned, many of the County's expenditures move independently of inflation as measured by the headline CPI. Additionally, the County has not fully re-established sustainable budgets for all departments such as transportation, waste and social housing. The ongoing trend of heightened inflationary pressures within the economy for construction type activities, as evidenced by the Non-residential Construction Price Index, will make it increasingly difficult to continue to limit tax levy increases without impacting capital intensive programs or seeing the infrastructure deficit worsen.

The chart below has been included in budget presentations over the past several years. It continues to be relevant as it provides a clear picture of the actual changes in the County levy compared to inflation and program changes. The green line shows the major decrease in the County levy through the 1990's when budgets were slashed across all departments. However, program responsibilities such as County Roads stayed the same and therefore by the year 2000 the County's programs were all seriously underfunded. From 1998-2001, a range of former Provincial and Federal programs, such as Social Housing, several roads and EMS, were downloaded to the County with significant financial costs. From 2000-2005, the

levy increases were steep as Council struggled to meet its responsibilities to fund and operate all of the former and new downloaded services. The red line represents the Consumer Price Index (CPI) and shows how, theoretically, the County levy should have been increased to sustain its original program responsibilities only. The blue line is a theoretical line showing how the levy should have been increased from 1993 to today to handle both the original and downloaded program responsibilities. The purple dashed line reflects the additional investment in capital (for all County asset categories) that was recommended in the County's 2014 and 2022 Asset Management Plans. While this chart shows significant financial challenges in the past, currently the County is much more financially stable as we have made up much of the ground previously lost.

Levy vs Consumer Price



We have continued to project stable increases over the next several years. However, as we continue on the path of financial rebuilding, annual levy increases need to address the perpetual shortfall in infrastructure funding particularly in light of increased inflationary pressures for construction type activities which will erode financial capacity in future years and will not maintain the required pace.

The Federal Gas Tax is the primary source of infrastructure funding available to the County. Ongoing Federal Gas Tax funding is an important part of the County Construction funding strategy. Any changes to this program would have a significant impact on the County's core asset renewal capabilities.

The Province introduced the formula based Ontario Community Infrastructure Fund (OCIF) program in 2014 for small, rural and northern communities to use on core infrastructure assets. In 2024 the province will distribute a total of $400M in OCIF funding to eligible municipalities based on the current replacement value of their core assets.

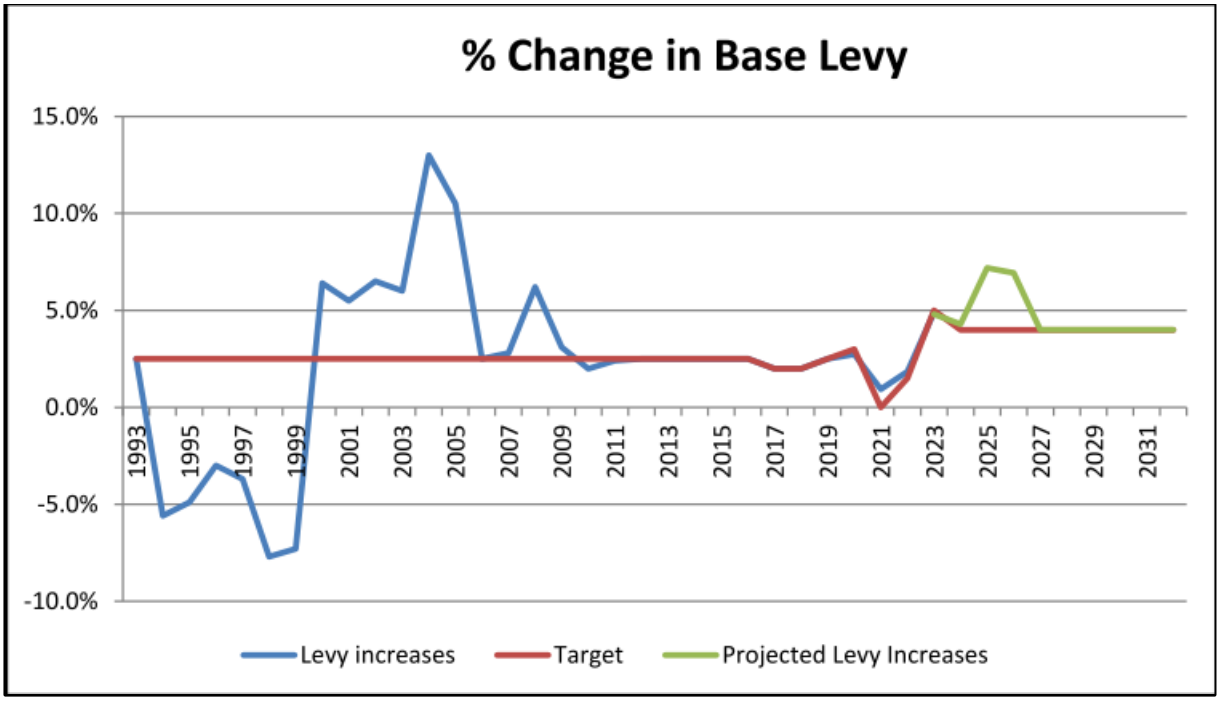
Application based funding programs are sporadic and require competition with other municipalities. In an environment where almost all municipalities are in need of infrastructure investments, the competition is fierce to chase relatively small pots of funding. Therefore, the level of annual increases is being reconsidered for future budgets as we develop plans to reach sustainable funding levels for both operating and capital budgets.

7.2.2 Long Term Financial Planning Framework

In recognition of the many competing priorities and budget pressures, the County developed a long-term financial plan in 2012. Since then, County staff have prepared the ten-year financial planning model, that is aligned with the County's strategic plan, and accordance with methodologies derived under the adopted Long-Term Financial Planning Framework (LTFPF).

The County has adopted a financial strategy within this framework that is focused on long term needs and challenges, as opposed to focusing solely on the current budget year levy impact. In order to ensure consistent and modest levy increases over time, this framework adopts a philosophy of establishing a targeted annual increase within the current year budget and the nine-year forecast.

In prior years the County experienced significant volatility in annual levy decreases/increases. Since adopting the LTFPF, the County has realized stable annual levy increases and this approach carries forward within the long-term financial model as displayed below:



* Prior to 2020, the Base Levy excluded the Dedicated Infrastructure Levy; however, included the annual increase for the Transportation Construction Program. Effective 2021, calculation methodology changed whereby the base levy also excludes the annual increase for the Transportation Construction Program now treated as Dedicated Infrastructure Investments. The 2020 target was set by Council as inclusive of the Base Levy and Dedicated

Infrastructure Investments. 2021 Target represents Council request for feasibility review of a 0.0% increase. Hospital grants are excluded from base levy.

This chart helps to display how each year is interlinked and how decisions focusing on the short term can impact on future years. In the '90's the County experienced levy rate reductions and then in subsequent years implemented significant increases trying to rebuild operating and capital budgets particularly in light of Provincial downloads. In conjunction with this, reserves were depleted as a means for financing routine capital items and in some instances, projects were completed and recorded as unfinanced capital within the Financial Statements. Working capital was minimal and the operating line of credit was frequently utilized to maintain cash flow requirements.

Prudent long-term focused planning under the existing framework allows for improved financial positioning by building upon reserves. Minimization of debt servicing costs is achieved with the issuing of debt for only larger, non-routine capital projects or projects where debt is available at exceptionally low rates that allow project funds to be stretched further. Striving towards a more sustainable financial model, escalation of annual capital budgets is a key priority.

The County continues to work towards addressing the infrastructure deficit. Much of the infrastructure the County owns was downloaded from the Province in the form of roads, bridges and social housing. In many instances, this infrastructure is nearing the end of useful life and is inefficient and costly to operate and maintain. In 2016, the County introduced a dedicated infrastructure levy. Even with the implementation of this special purpose levy, infrastructure spending is only marginally gaining ground relative to the need that relates to the desired level of service. Adoption of a County-wide D.C. has increased financial capacity towards advancing expansion related infrastructure projects within the Transportation Department given the significant funding gap identified in this area.

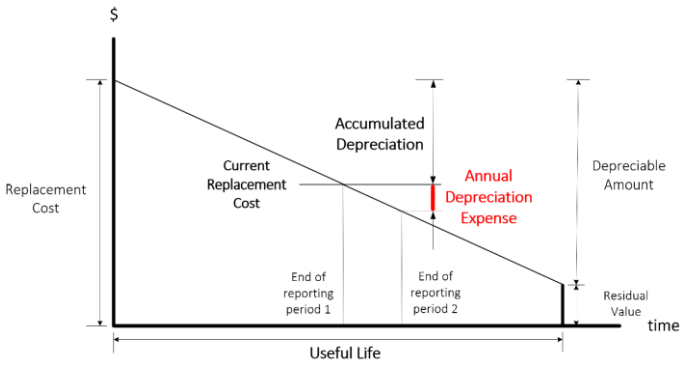
For a detailed review of the budget background and its components please refer to the Financial section of the Northumberland County Core Infrastructure Asset Management Plan.

7.3 Valuation Forecasts

7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at current replacement costs derived from estimates.

Replacement Cost (Gross)	$10,507,295
Depreciable Amount	$10,507,295
Current Replacement Cost[13]	$5,357,161
Annual Depreciation Expense	$243,192



[13] Also reported as Written Down Value, Carrying Amount or Net Book Value in some jurisdictions.

Valuation forecast

Asset values are forecast to increase as additional assets are added into service.

Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

7.4 Key Assumptions Made in Financial Forecasts

In compiling this AM Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this AM Plan are:

- Used 2000 for the year, which is the year the management of the County owned forest was taken back by the County from the Ministry of Natural Resources.
- Used 2019 for the year the trail signs were acquired as this appeared to be the average date.
- Used $8,940,000 ($4000/ha) for the current replacement value of the forest which is based on an average found through research.
- Used $10,000 per kilometre for the current replacement value of the trails which is based on an average found through research.
- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles.
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations.
- Assumed function and capacity were the same as condition in the asset register.

7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale[14] in accordance with Table 7.5.1.

Table 7.5.1: Data Confidence Grading System

Confidence Grade	Description
A. Very High	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2%

[14] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

Confidence Grade	Description
B. High	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%
C. Medium	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25%
D. Low	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy ± 40%
E. Very Low	None or very little data held.

The estimated confidence level for the reliability of data used in this AM Plan is shown in Table 7.5.2.

Table 7.5.2: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand drivers	Medium	Identified through studies, staff knowledge, and research.
Growth projections	Medium	Growth projections were obtained from Statistics Canada, in correlation with the County's Official Plan update which will help guide growth and development in Northumberland over the next 30 years.
Acquisition forecast	Low	Acquisition forecasts were determined through activities outlined in the Natural Heritage budget documents and Forest Master Plan.
Operation forecast	Medium	Used data directly from budget.
Maintenance forecast	Medium	Used data directly from budget.
Renewal forecast - Asset values	Low	Renewal forecasts were determined through activities outlined in the Natural Heritage budget documents and Forest Master Plan as well as staff knowledge.

Data	Confidence Assessment	Comment
- Asset useful lives	Medium	Identified through studies, staff knowledge, and research.
- Condition modelling	Medium	Identified through studies and staff knowledge.
Disposal forecast	Low	Disposal forecasts were determined through activities outlined in the Forest Master Plan.

The estimated confidence level for the reliability of data used in this AM Plan is considered to be medium.

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[15]

8.1.1 Accounting and financial data sources

This AM Plan utilizes accounting and financial data. The source of the data is the County's Finance department (approved annual budget and the long term financial plan). Current replacement costs were derived from technical engineering estimates provided in studies or reports completed by external consultants and internal staff (i.e. Forest Master Plan).

8.1.2 Asset management data sources

This AM Plan also utilizes asset management data. The source of the data is stored in the County's Geographic Information System.

8.2 Improvement Plan

It is important that an entity recognize areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in Table 8.2.

Table 8.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Further development and refinement of the asset register to confirm year acquired and replacement costs.	Natural Heritage and GIS Department Staff	Staff time	On-going
2	Further implementation and ongoing use of CityWorks for Natural Heritage data to better understand operation, maintenance and capital work and associated costs.	Natural Heritage and Asset Management Staff	Staff time	On-going
3	Discussions between Natural Heritage and Finance Departments to better understand how natural assets are valued, tracked, and amortized.	Natural Heritage and Finance Departments	Staff time	On-going
4	Monitor asset resilience and complete a resilience assessment and plan.	Natural Heritage and AM Staff	Staff time	1-2 years
5	Develop a more robust risk management plan.	All Departments	Staff time	1-5 years
6	Develop an updated Silviculture Plan.	Natural Heritage Staff	Staff time	2 years

[15] ISO 55000 Refers to this as the Asset Management System

8.3 Monitoring and Review Procedures

This AM Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The AM Plan will be reviewed and updated periodically to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

8.4 Performance Measures

The effectiveness of this AM Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the long-term financial plan,
- The degree to which the 1-5 year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the AM Plan,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieving the Organisational target (this target is often 90 – 100%).

9.0 REFERENCES

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- ISO, 2014, ISO 55000:2014, Overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- Northumberland County Forest Master Plan 2021-2041
- Annual Plan and 2023 Budget Documents
- Northumberland County Strategic Plan 2023-2027

10.0 APPENDICES

Appendix A Acquisition Forecast

A.1 – Acquisition Forecast Assumptions and Source

Assumptions relating to the operation forecast include:

- $25,000 for new trail development and land acquisition in years 2024-2026
- $35,000 for new trail development and land acquisition in years 2027-2043

A.2 – Acquisition Project Summary

A.3 – Acquisition Forecast Summary

Table A3 - Acquisition Forecast Summary

Year	Constructed	Donated	Growth
2024	$25,000	0	0
2025	$25,000	0	0
2026	$25,000	0	0
2027	$35,000	0	0
2028	$35,000	0	0
2029	$35,000	0	0
2030	$35,000	0	0
2031	$35,000	0	0
2032	$35,000	0	0
2033	$35,000	0	0
2034	$35,000	0	0
2035	$35,000	0	0
2036	$35,000	0	0
2037	$35,000	0	0
2038	$35,000	0	0
2039	$35,000	0	0
2040	$35,000	0	0
2041	$35,000	0	0
2042	$35,000	0	0
2043	$35,000	0	0

Appendix B Operation and Maintenance Forecast

B.1 – Operation and Maintenance Forecast Assumptions and Source

Assumptions relating to the operation forecast include:

- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations
- Forecasted costs based on technical estimates from proposed 2023 budget

B.2 – Operation and Maintenance Forecast Summary

Table B2 - Operation and Maintenance Forecast Summary

Year	Operation Forecast	Maintenance Forecast	Total Forecast
2024	$76,378	$257,160	$333,538
2025	$77,687	$258,425	$336,112
2026	$78,609	$259,380	$337,989
2027	$80,063	$260,568	$340,631
2028	$81,547	$261,779	$343,326
2029	$83,061	$263,014	$346,075
2030	$84,606	$264,275	$348,881
2031	$86,183	$265,560	$351,743
2032	$87,792	$266,871	$354,663
2033	$89,433	$268,209	$357,642
2034	$92,116	$277,404	$369,520
2035	$94,879	$286,898	$381,777
2036	$97,726	$296,699	$394,425
2037	$100,657	$306,819	$407,476
2038	$103,677	$317,268	$420,945
2039	$106,788	$328,054	$434,842
2040	$109,991	$339,189	$449,180
2041	$113,291	$350,684	$463,975
2042	$116,689	$362,551	$479,240
2043	$120,190	$373,426	$493,616

Appendix C Renewal Forecast Summary

C.1 – Renewal Forecast Assumptions and Source

Assumptions relating to the renewal forecast include:

- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations
- All forecasted costs based on technical estimates
- Assumed 50-year lifecycle for Forest and Trail Network
- Assumed Consultant Services in the budget was 60% for renewals

C.2 – Renewal Project Summary

The project titles included in the lifecycle forecast are included here.

Asset	Year	Forecast
Trail use Counter	2024	$20,000
Garbage Receptacle	2024	$3,600
Kiosk	2024	$12,500
Parking Lots	2025	$80,000

C.3 – Renewal Forecast Summary

Table C3 - Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2024	$344,441	$135,000
2025	$344,441	$135,000
2026	$344,441	$135,000
2027	$344,441	$138,900
2028	$344,441	$142,878
2029	$344,441	$146,936
2030	$344,441	$151,074
2031	$344,441	$155,296
2032	$344,441	$159,602
2033	$344,441	$163,994
2034	$354,774	$170,714
2035	$365,417	$177,635

Year	Renewal Forecast	Renewal Budget
2036	$376,379	$184,764
2037	$387,671	$192,107
2038	$399,301	$199,670
2039	$411,280	$207,460
2040	$423,618	$215,484
2041	$436,327	$223,749
2042	$449,417	$232,261
2043	$462,900	$239229

Appendix D Disposal Summary

D.1 – Disposal Forecast Assumptions and Source

There are currently two sandpits (which are not considered part of the recreational trail infrastructure / assets) that require closure in response to safety concerns. These are being closed with brush piling to limit access and natural growth, so it is assumed that there is no associated cost for the County.

D.2 – Disposal Project Summary

The project titles included in the lifecycle forecast are included here.

Asset	Reason for Disposal	Timing	Disposal Costs	Operations & Maintenance Annual Savings
Trail	Steep and prone to erosion; very little use	When time allows	$0 (stopping up with brush/natural growth)	$0
Sandpits	High-risk ruse my off-road vehicles, bon-fires	2023-2024	$0 (pilling brush/natural growth)	$0

D.3 – Disposal Forecast Summary.

Table D3 – Disposal Activity Summary

Year	Disposal Forecast	Disposal Budget
2024	0	0
2025	0	0
2026	0	0
2027	0	0
2028	0	0
2029	0	0
2030	0	0
2031	0	0
2032	0	0
2033	0	0
2034	0	0

Year	Disposal Forecast	Disposal Budget
2035	0	0
2036	0	0
2037	0	0
2038	0	0
2039	0	0
2040	0	0
2041	0	0
2042	0	0
2043	0	0

Appendix E Budget Summary by Lifecycle Activity

Assumptions relating to the budget include:

- The Long-Term Financial plan, and proposed budget documents were used to determine budget figures.
- The last 10 years of projected expenditures maintains the year 10 need or expenditure and applies year over year inflation of 2% in keeping with the Bank of Canada forecast and good financial principles
- The last 10 years of projected expenditures has an additional 1% increase to accommodate growth considerations

Table E1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2023	$0	$69,775	$53,000	$80,000	$0	$202,775
2024	$0	$76,378	$107,160	$135,000	$0	$318,538
2025	$10,000	$77,687	$158,425	$135,000	$0	$381,112
2026	$10,000	$78,609	$159,380	$135,000	$0	$382,989
2027	$35,000	$80,063	$162,568	$138,900	$0	$416,531
2028	$35,000	$81,547	$165,819	$142,878	$0	$425,244
2029	$35,000	$83,061	$169,135	$146,936	$0	$434,131
2030	$35,000	$84,606	$172,518	$151,074	$0	$443,199
2031	$35,000	$86,183	$175,968	$155,296	$0	$452,447
2032	$35,000	$87,792	$179,487	$159,602	$0	$461,881
2033	$35,000	$89,433	$183,078	$163,994	$0	$471,504
2034	$35,000	$92,116	$188,570	$170,714	$0	$486,399
2035	$35,000	$94,879	$194,227	$177,635	$0	$501,741
2036	$35,000	$97,726	$200,053	$184,764	$0	$517,543
2037	$35,000	$100,657	$206,055	$192,107	$0	$533,819
2038	$35,000	$103,677	$212,237	$199,670	$0	$550,584
2039	$35,000	$106,788	$218,604	$207,460	$0	$567,852
2040	$35,000	$109,991	$225,162	$215,484	$0	$585,637
2041	$35,000	$113,291	$231,917	$223,749	$0	$603,957
2042	$35,000	$116,689	$238,874	$232,261	$0	$622,824
2043	$35,000	$120,190	$246,040	$239,229	$0	$640,459